

CLAIMS

1. A remote control system in which a remote commander is used to operate one or more devices to be controlled,

wherein the remote commander and at least some of the devices to be controlled are provided with a network communication function, and a device to be controlled is operated by means of a command through a network in response to a user input on the remote commander.

2. The remote control system according to Claim 1, wherein the device to be controlled returns a response through the network in response to a command transmitted by the remote commander through the network.

3. The remote control system according to Claim 1, wherein the remote commander submits a request for data to the device to be controlled, and the device to be controlled returns the requested data through the network.

4. The remote control system according to Claim 3, wherein the remote commander plays back and outputs the data received from the device to be controlled.

5. The remote control system according to Claim 4, wherein the device to be controlled converts the data

requested from the remote commander into a format that can be played back and output by the remote commander, and returns the converted data through the network.

6. The remote control system according to Claim 1, wherein:

the device to be controlled includes an IR device that can be remotely controlled only by means of infrared communication, and a remote control server having a network communication function and a protocol conversion function of converting a command received through the network into an infrared command; and

the remote control server receives an operation command for the IR device from the remote commander through the network, converts the operation command into an infrared command, and transfers the infrared command to the IR device.

7. The remote control system according to Claim 6, wherein the remote control server extracts from the IR device the data requested by the remote commander to the IR device, and converts the extracted data into a format that can be played back and output by the remote commander to return the converted data to the remote commander through the network.

8. The remote control system according to Claim 4,
wherein:

the device to be controlled stores EPG data, and
returns the EPG data through the network in response to an
EPG data request from the remote commander; and

the remote commander displays and outputs received EPG
data.

9. The remote control system according to Claim 8,
wherein the remote commander transmits a channel change
request to a television receiver serving as a device to be
controlled in response to designation of a channel on a
current EPG data display view.

10. The remote control system according to Claim 9,
wherein:

the device to be controlled converts video content
received on the channel specified in the change request
given by the remote commander into a format that can be
played back and output by the remote commander, and
distributes the converted video content via streaming
through the network; and

the remote commander decodes the video content received,
and displays video.

11. The remote control system according to Claim 9, wherein the television receiver serving as the device to be controlled changes the display of the video to the channel specified in the change request given by the remote commander.

12. The remote control system according to Claim 8, wherein, in response to designation of a program on a future EPG data display view, the remote commander transmits a request for setting a reservation to record the program to a recording device serving as a device to be controlled.

13. The remote control system according to Claim 6, wherein:

upon receiving a recording reservation request from the remote commander through the network, the remote control server converts the recording reservation request into infrared reservation data on the basis of EPG data, and transmits the recording reservation request via infrared light to an IR recording device that can be remotely controlled only by means of infrared communication; and

the IR recording device sets a recording reservation according to the infrared reservation data from the remote control server.

14. The remote control system according to Claim 5, wherein:

in response to a request for video content from the remote commander, a recording device serving as the device to be controlled converts the requested video content into a format that can be played back and output by the remote commander, and distributes the converted video content via streaming through the network; and

the remote commander decodes the video content received, and displays video.

15. The remote control system according to Claim 6, wherein:

upon receiving a video content request from the remote commander through the network, the remote control server converts the video content request into an infrared command, and transmits the video content request via infrared light to an IR recording device that can be remotely controlled only by means of infrared communication;

the IR recording device outputs video content according to the infrared command from the remote control server; and

the remote control server converts the video content output from the IR recording device into a format that can be played back and output by the remote commander, and distributes the converted video content to the remote

commander via streaming through the network.

16. The remote control system according to Claim 14 or 15, wherein:

the remote commander requests a display device serving as the device to be controlled to change the display of the video to video content currently being displayed on the remote commander; and

the display device changes the screen to the video output from the recording device in response to the request to change the display of the video.

17. The remote control system according to Claim 1, wherein the remote commander submits a request for device information to the devices to be controlled having the network communication function through the network, and displays a device list concerning a device to be controlled that has responded with device information in response to the request.

18. The remote control system according to Claim 17, wherein the remote commander displays a device to be controlled that responded with device information in the past and that does not respond at present in a grayed-out manner on the device list, or deletes a device to be

controlled that has not responded with device information for a certain period of time or more from the device list.

19. The remote control system according to Claim 17, wherein the remote commander transmits an operation request to a device to be controlled selected on the device list.

20. The remote control system according to Claim 18, wherein, when the device to be controlled displayed in a grayed-out manner on the device list is selected, the remote commander transmits an operation request after submitting a request for turning on the device to be controlled.

21. The remote control system according to Claim 6, wherein:

the remote control server registers therein information on IR devices to which the infrared command can be transmitted, and returns IR device information to the remote commander in response to a request from the remote commander; and

the remote commander displays an IR device list.

22. The remote control system according to Claim 21, wherein:

the remote commander transmits an operation request for

an IR device selected on the IR device list to the remote control server through the network; and

the remote control server converts the operation request for the IR device from the remote commander into an infrared command, and transfers the converted infrared command to the IR device.

23. A remote commander for remotely operating one or more devices to be controlled, comprising:

a network communication unit that performs a communication operation through a network;

a user input unit that receives an instruction input from a user; and

a data processing unit that processes data to be transmitted to and received from a device to be controlled through the network according to the instruction input from the user via the user input unit.

24. The remote commander according to Claim 23, wherein the data processing unit processes transmission of a command to and reception of a response from a device to be controlled through the network.

25. The remote commander according to Claim 23, further comprising a data playback-output unit that decodes data

received through the network to play back and output the data.

26. The remote commander according to Claim 25, wherein the data playback-output unit displays and outputs received EPG data.

27. The remote commander according to Claim 26, wherein a channel change request is transmitted to a television receiver serving as a device to be controlled in response to designation of a channel on a current EPG data display view.

28. The remote commander according to Claim 25, wherein the data playback-output unit decodes received video content, and displays video.

29. The remote commander according to Claim 26, wherein, in response to designation of a program on a future EPG data display view, a request for setting a reservation to record the program is transmitted to a recording device serving as a device to be controlled.

30. The remote commander according to Claim 25, wherein:
a request for device information is submitted to
devices to be controlled having a network communication

function through the network; and

the data playback-output unit displays a device list concerning a device to be controlled that has responded with device information in response to the request.

31. The remote commander according to Claim 30, wherein a device to be controlled that responded with device information in the past and that does not respond at present is displayed in a grayed-out manner on the device list, or a device to be controlled that has not responded with device information for a certain period of time or more is deleted from the device list.

32. The remote commander according to Claim 30, wherein an operation request is transmitted to a device to be controlled selected on the device list.

33. The remote commander according to Claim 31, wherein, when the device to be controlled displayed in a grayed-out manner on the device list is selected, an operation request is transmitted after a request for turning on the device to be controlled is submitted.

34. A remote control server operating in a communication environment where a remote commander operates one or more

devices to be controlled through a network, comprising:

a network communication unit that performs a communication operation through the network; and

a protocol conversion unit that converts a command received through the network into an infrared command,

wherein an operation command for an IR device that can be remotely controlled only by means of infrared communication is received from the remote commander through the network, and is converted into an infrared command to transfer the infrared command to the IR device.

35. The remote control server according to Claim 34, further comprising a codec processing unit that encodes data into a format that can be played back and output on the remote commander,

wherein data requested by the remote commander to the IR device is extracted from the IR device and is converted into a format that can be played back and output by the remote commander, and the converted data is returned to the remote commander through the network.

36. The remote control server according to Claim 35, wherein:

the remote control server is connected to a television receiver or is integrally formed with a television receiver;

an EPG storage unit that stores EPG data separated from a received broadcast wave is provided; and

the EPG data is returned through the network in response to an EPG data request from the remote commander.

37. The remote control server according to Claim 36, wherein video content received on a channel specified in a change request given by the remote commander is converted into a format that can be played back and output by the remote commander, and the converted video content is distributed via streaming through the network.

38. The remote control server according to Claim 36, wherein the display of video is changed to a channel specified in a change request given by the remote commander.

39. The remote control server according to Claim 36, wherein, when a recording reservation request is received from the remote commander through the network, the recording reservation request is converted into infrared reservation data on the basis of the EPG data, and the recording reservation request is transmitted via infrared light to an IR recording device that can be remotely controlled only by means of infrared communication.

40. The remote control server according to Claim 36, wherein:

when a video content request is received from the remote commander through the network, the video content request is converted into an infrared command, and the video content request is transmitted via infrared light to an IR recording device that can be remotely controlled only by means of infrared communication; and

video content output from the IR recording device is converted into a format that can be played back and output by the remote commander, and the converted video content is distributed via streaming to the remote commander through the network.

41. The remote control server according to Claim 34, wherein information on IR devices to which the infrared command can be transmitted is registered, and IR device information is returned to the remote commander in response to a request from the remote commander.